GULFWIDE HIGHLIGHTS

THE GULF OF MEXICO PROGRAM RESPONSE TO HARMFUL ALGAL BLOOMS

Harmful Algal Blooms (HABs) are a leading source of marine biotoxins and a major cause of marine deaths and increased human health risk. There is growing evidence that the United States is experiencing an escalating incidence of harmful and toxic algae, which can cause human illness from eating contaminated shellfish or inhaling aerosols, closure of beaches and shellfish beds, death of marine mammals and seabirds, and a change in marine habitats. As a consequence, HAB events adversely affect commercial and recreational fishing, tourism, and valued habitats, creating a significant impact on local economies and the livelihood of coastal residents.

The Gulf of Mexico has a long history of HAB events. Approximately half of the 100 species of toxic microalgae in the world occur in the Gulf of Mexico. Blooms of *Karenia brevis*, which produce a neurotoxin, have occurred off the west coast of Florida and the Texas coast. However, in 1996, the first recorded *K. brevis* 'red tide' event to impact the coastal waters of all five Gulf States occurred. This event caused shellfish bed closures and fish kills Gulfwide and impacted beaches in several states.

Early warnings and timely forecasts of when and where a HAB event is occurring or will occur improve the ability of state agencies to protect public health, protect marine resources, and disseminate relevant, timely and accurate information to the public to mitigate potential economic impacts. The primary objectives of the Harmful Algal BloomS Observing System (HABSOS) Pilot Project are to establish a network of coastal laboratories for rapid collection and dissemination of data and related information of *K. brevis* events, and design and implement a data management and communication system for environmental measurements related to *K. brevis* events.

Success of the HABSOS Pilot Project will require an unprecedented level of coordination and collaboration among state and federal agencies and academic institutions. In particular, the HABSOS Pilot Project must rely on coordinated and dedicated activities by the Gulf of Mexico Program, National Association of Marine Laboratories, National Coastal Data Development Center, and the U.S. Integrated Coastal Ocean Observing System Office. A Steering Committee comprised of these Partner Institutions will guide the HABSOS Pilot Project, while day-to-day activities will be administered by the Gulf of Mexico Program.

EVALUATION AND RESPONSE TO THREATS TO PUBLIC HEALTH FROM CONTAMINATED SHELLFISH

The Interstate Shellfish Sanitation Conference through a cooperative agreement with the Gulf of Mexico Program developed a training video for State Shellfish Control Agency Laboratory personnel on the use of gene probe methodology for Vibrio parahaemolyticus in shellfish growing waters. Human infections with Vibrio

parahaemolyticus have been associated with the consumption of raw or improperly cooked fish and shellfish. In the video, the U.S. Food and Drug Administration researchers who developed the technique demonstrate and describe all of the steps in the method. This video provides an economical alternative for this type of training and serves as a reference source providing valuable information in the evaluation of and response to threats to public health. Copies of the video and an accompanying brochure were provided to all laboratories with shellfish control responsibilities and are available on ISSC's website at www.ISSC.org

HABITAT RESTORATION PARTNERSHIP BENEFITS THE GULF COAST

The National Oceanic and Atmospheric Administration (NOAA) and the Gulf of Mexico Program awarded $250,000 and $90,000 respectively to the Gulf of Mexico Foundation for habitat restoration in the five states bordering the Gulf of Mexico. The Gulf of Mexico Foundation, with support from the Gulf of Mexico Program Office, administers the Gulf Ecological Management Sites (GEMS) Program, which is a Gulfwide network of unique habitat areas ecologically significant to the continued production of fish, wildlife, and other natural resources. NOAA fisheries provides federal support for the partnership through its Community-Based Restoration Program, which works with community organizations to support locally-driven habitat restoration projects in marine, estuarine and riparian areas.

These awards launch a major effort to reclaim essential fish habitats of the Gulf of Mexico by implementing "in-the-field" efforts to restore and improve marine and coastal habitats that have been degraded or lost in Texas, Louisiana, Mississippi, Alabama, and Florida. Building upon the foundation of the GEMS Program, funding will be used to create partnerships in the Gulf of Mexico. Partnerships will be promoted at the regional and local level to contribute funding, technical assistance, land, volunteer support or other in-kind services to help citizens carry out restoration projects in the GEMS areas in the Gulf of Mexico.

Seagrass habitats, oyster reefs, marsh and wetland habitats and many more unique and essential fish habitats will be targeted. The purpose is to ensure that those habitats essential to the successful life cycles of the living marine resources of the Gulf of Mexico continue to exist and become more healthy and productive over time.

To develop a sense of stewardship within the affected communities, a comprehensive educational outreach program will be a cornerstone of the effort. Outreach programs will be incorporated into the efforts, such as the Cyberways and Waterways Program, with its interactive website, and the Adopt-A-Wetland Program with extensive teacher education programs. Local school groups and civic organizations will be involved, and these groups will ultimately ensure the continuation of the program beyond the grant period.

More information on the Gulf of Mexico Foundation can be viewed at: http://www.sci.tamucc.edu/gmf/

BRIEF SYNOPSIS OF GULFWIDE PROJECTS

Funded by the Gulf of Mexico Program in 2001

Gulf Mapping and Analysis Center
U.S. Geological Survey, National Wetlands Research Center
The purpose of this interagency agreement between the Gulf of Mexico Program and the National Wetlands Research Center is to leverage the specialized expertise and capability of the Center to assist the Gulf Program in its application of the strategic assessment process to its priority issues and in its regional environmental assessment activities. $134,000

Gulf Mortality Network Implementation
Florida Marine Research Institute
The Gulf of Mexico Program and the Florida Marine Research Institute share a common interest in establishing and maintaining a reliable response network in the Gulf of Mexico. This project will initiate a plan to design, code, test and implement a new database system. $90,000

Modeling of Mississippi Sound and Adjoining Rivers, Bays and Shelf Waters
University of Southern Mississippi
An accurate, high-resolution circulation-sediment-wave modeling system for the Mississippi Sound and adjoining rivers, bays, and shelf waters is being implemented and tested. The modeling system will consist of a three-dimensional circulation model, a sand-silt sediment transport model, and a wave model. $200,000

Inventory of Marine Science Research in the Gulf of Mexico
Mississippi B Alabama Sea Grant Consortium
This project will provide an inventory of current and planned research in the Gulf region that may help answer questions important to resolving critical environmental issues in the Gulf of Mexico ecosystem. The Mississippi B Alabama Sea Grant Consortium will develop an inventory that will help coordinate research activities, improve knowledge of the Gulf ecosystem, and avoid duplication of efforts in the research community. $10, 800

GMP/ISSC Multi-Media Outreach and Communications Strategy Targeted at High-Risk Consumers of Shellfish
International Shellfish Sanitation Conference
The main objective of this project is to educate people whose immune systems are compromised by liver disease, chemotherapy, etc., about the risks posed by the marine bacteria, *Vibrio vulnificus*, to which they could potentially be exposed by eating raw oysters and to encourage them to avoid eating uncooked oysters. $75,000

International Marine Bioinvasions Conference
Louisiana Sea Grant
Support is provided for workshops to address international marine bioinvasions. The workshops will assemble the various principals in ballast water management to begin looking for alternatives and/or new strategies based on best management practices related to reducing nonindigenous species invasions from ballast water. Strategies will be developed to address research needs relating to new technology and present operational procedures for all types of vessels. $5,000

Citizens Advisory Committee Support
Battelle Memorial Institute
Technical Support will be provided to the Citizen's Advisory Committee for the Gulf Program strategic assessment process. The interaction between the Committee and the citizens of the Gulf States will be supported, as well as the interaction of the Committee with the Policy Review Board and other groups, committees, and organizations. $50,000

Gulf of Mexico Seagrass Support

U.S. Geological Service

The U.S. Geological Service will assist the Habitat Focus Team with several tasks: (1) Provide the necessary tools and digital data for further evaluation of historic and existing seagrass maps and photographs of Tampa Bay, (2) Document dead vegetative communities along the Barataria-Terrebonne area of Louisiana. These areas are now being closely monitored to see if any re-vegetation is taking place, and (3) Provide graphics and layout support for the Gulf of Mexico Program's Seagrass Status and Trends Report. $53,920

Documentary on Invasive Plants

Information Television Network

The Gulf of Mexico Program will be partners with other federal agencies in an upcoming episode of TECHNO 2100: a national education television documentary focusing on invasive plants. The focus will be the eradication methods being implemented to safeguard against the spread of noxious weeds and plants. $25,000

Gulf of Mexico Program Strategic Assessment Support

Battelle Memorial Institute

Technical support will be provided to the Gulf of Mexico Program's management and Focus Teams in the application of a strategic assessment framework. Tasks include Habitat Focus Team Meeting Support, Habitat Restoration Tracking System Inventory, Completion of Seagrass Status and Trends Report, Aquatic Nuisance Species Annual Reports, State Invasive Species Management Plan Development Support in two States, and Invasive Species Focus Team Support. $282,000

HABSOS- Integrated Case Study for the Gulf of Mexico

Dauphin Island Sea Lab

This project is part of a Harmful Algal Bloom Observing System Pilot Project of which the Gulf of Mexico Program is the coordinator. The Gulf Program, along with the U.S. Environmental Protection Agency's Gulf Breeze Laboratory, will be working with the National Oceanic and Atmospheric Administration's National Coastal Data Development Center, the National Association of Marine Laboratories, and the five Gulf states to use retrospective data from two time periods to develop an algorithm that will allow the prediction and tracking of harmful algal blooms with sufficient accuracy to allow preemptive actions to be taken by state environmental managers. $50,000

Public Education Exhibit on Invasive Species

The Florida Aquarium

The Florida Aquarium proposes to design, produce, and install an exhibit on invasive species impacting natural ecosystems in southwest Florida and the southeastern United States. This exhibit will educate the public about the role humans play in introducing invasive species into our natural systems, and how they as individuals and responsible citizens can help to control and alleviate this critical environmental problem. $10,000

TEXAS

BRIEF SYNOPSIS OF TEXAS STATEWIDE PROJECTS

Funded by the Gulf of Mexico Program in 2001

Texas Gulf Coast Oyster Waters

Texas Natural Resource Conservation Commission

The long-term goal of this project is to restore water quality in twenty coastal bays and estuaries contaminated with high densities of fecal coliform so that they may support oyster water designated use. The Texas Natural Resource Conservation Commission plans to develop long-term strategies to address the oyster water designated use impairments on the 2000 Clean Water Act '303(d) list. $81,000

Development of a Coastwide Monitoring Program Plan for Assessing Health of Texas Seagrass Habitats

Texas Parks and Wildlife

The objective of this project is to produce a quality seagrass monitoring program for Texas. This organized coastwide monitoring program would serve as the basis for such management applications as (1) defining water and sediment quality criteria, (2) protecting seagrass in state-designated management areas, and (3) determining the success of seagrass restoration and mitigation activities. $44,735

PRIORITY: LOWER LAGUNA MADRE

The Laguna Madre is 609 square miles of shallow estuarine and coastal marine systems separating Padre Island from the South Texas mainland. The boundary of Padre Island National Seashore encompasses approximately 20,000 acres of the Laguna Madre.

Submerged land, marshes, spoil islands, variable salinity and depths, including the variety of seagrasses, make the Laguna Madre, a 110-mile long saltwater lagoon, a unique natural community. Since no major rivers flow into the Laguna Madre, its salt content is quite high. The average water depth is about 2.5 feet, with some areas reaching a depth of five feet.

The Laguna Madre is an important breeding ground for many aquatic birds, as well as an important wintering and stopover area for numerous species. The extremely shallow areas provide excellent feeding grounds for winter duck populations, which number in the thousands. Eighty percent of the North American population of Redheads winter in the Laguna Madre. Shoal grass is the key species of the bay habitat, for it is the principal winter food for ducks, particularly Redheads, and is the spawning, foraging and nursery area for fish and shrimp.

Sport fishing is very rewarding in the Laguna Madre where redfish, black drum and flounder are caught. Petroleum is still a large commercial activity in Laguna Madre area, as well as commercial fishing. Brown shrimp

make up a large part of the commercial shrimp catch taken from the Gulf of Mexico and brought into ports contiguous to the Laguna Madre.

The key threat to the ecological integrity of the Laguna Madre is from toxic contamination. The Lower Laguna Madre receives significant quantities of agricultural pesticides and other environmental contaminants from the Arroyo Colorado, irrigation drainage of the Lower Rio Grande Valley. Oil spills from barges, discharge from the Mexican side of the Rio Grande, and hydrocarbon extraction are the threats posed by the high volume of commercial activities taking place on the Laguna Madre. Accidental releases of exotic shrimp or effluent from commercial shrimp farms are also issues of concern.

The Gulf of Mexico Program did not fund any projects in the Lower Laguna Madre area of Texas during 2001.

PRIORITY: COASTAL BEND BAYS & ESTUARIES

The Coastal Bend bay system has been designated as an estuary of national significance and is included in the U.S. Environmental Protection Agency's National Estuary Program. The bay system is a key component in the regional economy. Corpus Christi Bay is the gateway to the sixth largest U.S. port and the third largest refinery and petrochemical complex. Bay and Gulf of Mexico commercial fisheries directly benefit from a productive bay system and together generate $45 million in sales annually. Over 30 percent of the recreational saltwater fishing in Texas occurs in the region. Nearly five million people visit these shores each year, with ecotourism becoming an increasingly important component of the travel industry. Agriculture is an important part of the region's economy, and rangeland watersheds are a major source of freshwater inflows for the area's bays and estuaries.

More than 490 species of birds and 234 species of fish attest to the region's enormous biological diversity. Several major habitat types support this, but seagrass meadows are of special significance and central to the high productivity of these estuaries. The Coastal Bend system harbors 40 percent of the state's total seagrass acreage. Nineteen state listed endangered or threatened species use the estuaries, including the whooping crane; Arctic and American peregrine falcons; piping and snowy plovers; brown pelicans; Eskimo curlew; reddish egrets; opossum pipefish; and Kemp's Ridley, green, hawksbill, leatherback, and loggerhead sea turtles.

The Coastal Bend system is located in a semi-arid region and is subject to the growing needs of a large city, Corpus Christi. The

Brief Synopsis of Coastal Bend Bays and Estuaries Area Projects

Funded by the Gulf of Mexico Program in 2001

Colonial Waterbird Rookery Island Management within the Coastal Bend Area (Year 2)

Coastal Bend Bays and Estuaries Program

Continued support is provided to address avian resources, species requirements, threats faced by the species, and habitats they require in the Coastal Bend Bays and Estuaries Program area. This project will implement the Colonial Waterbird Rookery Island Strategic Management Plan for colonial waterbird conservation, which will continue to identify and prioritize projects to address threats to colonial waterbird species and their habitats on a regional scale. $85,000

Preliminary Assessment of Potential for Introduction of Nonindigenous Aquatic Species from Ballast Water

Coastal Bend Bays and Estuary Program

To effectively manage existing and future resources, the Coastal Bend Bays and Estuary Program needs to preliminarily assess the risk of introduction of nonindigenous species from deep-draft ships ballast water using the Corpus Christi, Texas, port system. The principal objective of this project includes an assessment of the potential for reciprocal transfers from Corpus Christi Bay waters to the waters of the trade partners. $25,000

increasing population and expanding residential, commercial, and industrial development in the area are a significant stress on the bay system. In addition to a lack of rainfall, water from rivers and streams that would otherwise flow to the estuary is diverted for residential, industrial, and agricultural uses. The lack of freshwater mixing with sea water causes pollutants to concentrate in the estuary and contributes to losses of oysters and white shrimp.

PRIORITY: GALVESTON BAY

Galveston Bay is one of 28 estuaries belonging to the National Estuary Program. Designated as an estuary of national significance, Galveston Bay is subject to the stresses created by two major metropolitan areas, the cities of Houston and Galveston, as well as a major shipping channel. Over 1.4 billion gallons of freshwater are used each day in the five bordering counties of Galveston Bay. The Bay's watershed receives 60 percent of the total wastewater discharge in Texas.

Galveston Bay is approximately 30 miles long and 17 miles wide, and is typically only six to 12 feet deep. The effects of wind dominate many physical processes. The main habitats of the area include extensive oyster reefs, marshes, and open water habitats.

Galveston Bay, with a surface area of 600 square miles, supports a population of finfish totaling more than 162 species. Some species spend their entire life in the bay, while others come in from the Gulf as newly hatched young and stay only a couple of years until they mature.

The bay contributes one-third of the commercial fishing income in Texas. Since 1930, shrimp has been the most important fishery in the bay above finfish and mollusks. In 1998, nearly 4.5 million pounds of shrimp were caught, not including bait shrimping efforts.

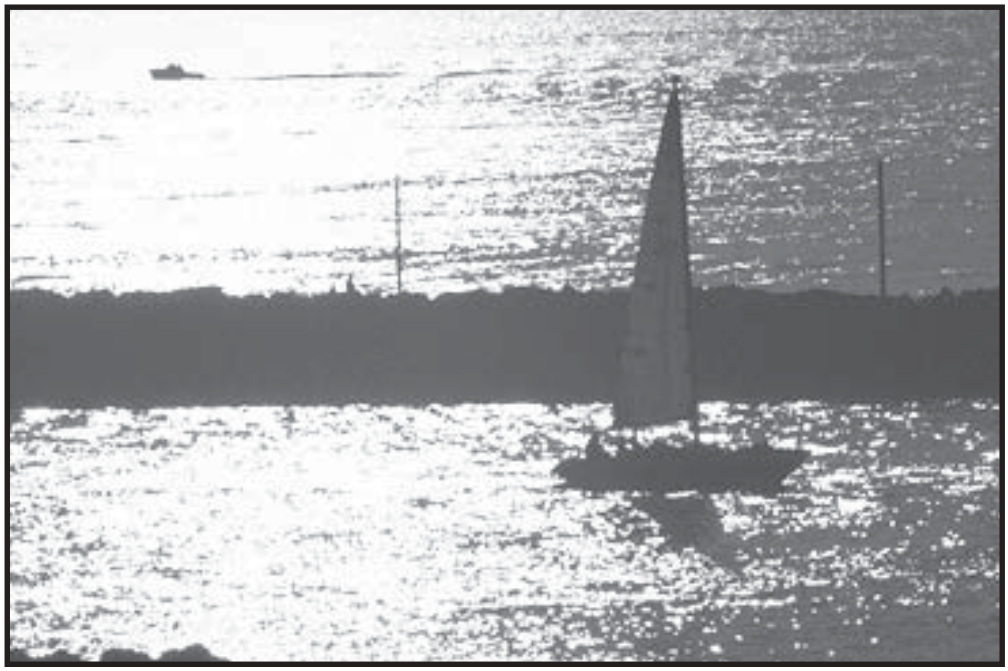
Brief Synopsis of Galveston Bay Area Projects
Funded by the Gulf of Mexico Program in 2001

Web Enabled Bay and Gulf Interactive Eco-Tour
Galveston Bay Estuary Program
The Galveston Bay Estuary Program will provide CD-ROM interactive, educational tools challenging users to explore estuaries and Gulf of Mexico environmental issues and then become involved in resolving the issues that have been created. The project will be designed for Internet and computer users of all ages and will be available for Mac and Windows computers. There will be a video disk for distribution to schools, libraries, learning centers, and nature centers. $45,000

The third largest concentration of recreational boats in the United States is located in Galveston Bay, and the area accounts for over one-half of recreational fishing expenditures. The most popular sport fish in the Galveston area is the spotted seatrout, or speckled trout. The estimated impact on the Texas economy by recreational fishing is $2 billion per year, with the Galveston Bay area accounting for 30 percent of that amount.

Threats to popular finfish can have great impact on the state's economy. Some of these threats include oxygen depletion, toxic spills, and "red tide" algal blooms.

Over $4.2 billion were generated into the Texas economy by travel related activities in the Galveston Bay watershed area.



LOUISIANA

PRIORITY: BARATARIA-TERREBONNE

Extending over 4.1 million acres, the Barataria-Terrebonne estuarine system contains some of the most diverse and fertile habitats in the world, including bays, lagoons, marshes, and swamps. The area is home to approximately 735 different species of birds, fish, and other animals that spend all or part of their lives here. Some birds travel from as far as South America in springtime to rest and feed here. However, no other place on Earth is disappearing as quickly as the Barataria-Terrebonne estuarine system—at a rate of 22 square miles each year. Because of its ecological and economic significance, as well as the threats facing it, the system was nominated to the National Estuary Program.

The Barataria-Terrebonne Estuary Program (BTNEP) has identified seven priority issues affecting the estuarine system. Each of the priority problems affects the others, compounding the difficulty of finding a solution to each problem: changes in water flow; reduction in sediment deposits available to the natural system; land loss and habitat change; an overabundance of nutrients in the water; pathogen contamination; toxic chemicals in the water; and changes in living resources. The Gulf of Mexico Program is working with the BTNEP to overcome many of these problems.

Brief Synopsis of Barataria Terrebonne Area Projects

Funded by the Gulf of Mexico Program in 2001

Bayou Lafourche Initiative (Year 2)

Barataria-Terrebonne Estuary Foundation

To increase the focus of public attention on the importance of Bayou Lafourche as a cultural lifeline and as the mainstream of the environmental health of the entire Bayou Lafourche community, this project will concentrate on linking existing heritage-based efforts, as well as ecological restoration efforts along the bayou, into an interactive alliance. $81,000

Evaluation of Marshland Upwelling System for Total Watershed

Louisiana State University

Marshland upwelling systems will be installed in the Bayou Segnett ecosystem to treat domestic wastewater from coastal dwellings. The overall goal is to reduce the impact on sensitive estuarine areas in the Bayou Segnett ecosystem and to investigate the efficacy of the marshland upwelling systems in removing viral pathogens. $90,000

Much of the populated area in the Barataria and Terrebonne basins are under forced drainage. It is believed that redirection of the effluent from these storm water pumps may be able to help rectify many of the problems affecting the area by restoring water flow, and providing sediment to the marshes while allowing the fecal coliforms and pathogenic microorganisms to die off before they reach valuable shellfish growing waters. A demonstration project is being conducted in the Pointe au Chien Wildlife Management Area to measure the extent of these potential benefits. This project should provide data necessary to monitor the influence of the enhanced nutrient and freshwater input into the system following installation of the pump station. The project seeks to reestablish or decrease the land loss within the project.

Bayou Lafourche is one of the most significant waterways in the BTNEP area. Several segments of the Bayou are not meeting designated uses for primary and secondary contact recreation and fish and wildlife propagation. Through the Bayou Lafourche Initiative the Barataria Terrebonne Foundation is fostering a sense of stewardship among the residents along the waterway in order to encourage eliminating the sources of impairments to the Bayou.

PRIORITY: LAKE PONTCHARTRAIN

Pontchartrain Basin is comprised of over 4,700 square miles of land that contains many rivers, bayous, swamps and hardwood forests. The water bodies from this area drain into the wetlands and mashes that surround Lakes Pontchartrain and Maurepas, and ultimately into the Gulf of Mexico.

Lake Pontchartrain is a major recreational center. The Inner Harbor Navigation Canal connects the lake with the Mississippi River to the south, and the City of New Orleans lies between the lake and the river. The Lake Pontchartrain Causeway is the world's longest bridge spanning 23.9 miles over the lake.

The Pontchartrain Basin is also home to approximately 1.5 million residents. Because of the population growth in the basin, one of the major environmental challenges is unplanned or poorly planned growth. The increased development in the basin has continued to attribute to a loss in wetlands and diminished water quality in this area. The Gulf of Mexico Program is working closely with the Pontchartrain Basin residents to preserve and restore the environmental resources of this area.

The Basin faces many challenges, all of which are affected by the geologic character of this dynamic coastal region. The more significant of the environmental issues include erosion of Lake Pontchartrain shores, wetland losses, water and sediment pollution from urban outfalls and agricultural runoff, saltwater intrusion from navigation waterways, possible effects of past commercial shell dredging, impacts of basin subsidence and faulting, effects of storms and sea-level rise, and potential impacts on circulation patterns of future freshwater diversions from the Mississippi River. Continued losses of wetland and estuarine habitats, water and sediment pollution, and diminished fish and wildlife resources are some of the results predicted if historical trends continue.

The Gulf of Mexico Program did not fund any projects in the Lake Pontchartrain area of Louisiana during 2001.

PRIORITY: MISSISSIPPI COASTAL BASINS

The Mississippi Coastal Basin is a vital ecosystem that contains one of the most productive marine fishery resources and diverse habitat types along the Gulf of Mexico. This basin is also home to several threatened and endangered species and important archeological sites. Several water bodies within the Mississippi Coastal Basin are listed as being highly impaired for their designated uses. The impairments are attributed to both point and nonpoint source pollution problems.

Hancock County is the most westward of Mississippi's three coastal counties and is located directly on the Gulf of Mexico. In partnership with various state, federal and local agencies and representatives, the Gulf of Mexico Program provided assistance to the residents of Hancock County to assist in the development of a consensus set of recommendations for handling Hancock County's wastewater needs. An independent technical evaluation of the engineering alternatives was provided through a subcontract to URS Corporation. Supplementing this project were other Gulf Program funded projects. The projects include the Mississippi Department of Marine Resources Land Suitability Analysis and the Mississippi Department of Environmental Quality water quality model that determines fecal coliform sources to the St. Louis Bay. The various engineering alternatives were reviewed and a range of solutions was recommended to the Hancock County representatives that were both cost effective and environmentally beneficial. By improving the wastewater collection and treatment in Hancock County, the water quality for one of Mississippi's highest priority water bodies, St. Louis Bay, will be improved.

The Gulf Program has been actively involved in assisting Mississippi's coastal counties in the development of a tri-county Coastal Impact Assistance Plan. The plan, based on guidelines developed by the Mississippi Department of Environmental Quality and the National Aeronautics and Space Administration will assist the Mississippi Gulf Coast in tapping into $24.3 million allocated to the state of Mississippi to address key environmental impact issues associated with development on the Mississippi Gulf Coast.

Brief Synopsis of Mississippi Coastal Basin Projects

Funded by the Gulf of Mexico Program in 2001

Longleaf Pine Restoration Project

Department of Marine Resources

This project will assist in restoring a longleaf pine savanna that will protect an estuarine marshland, which is located on the Dantzler Tract in Jackson County, Mississippi, and restore the area to its historical function as longleaf pine upland. The savanna will require, in the future, vegetation management and alteration to maintain the area. $35,000

Community Wastewater Treatment Systems Support B Hancock County

Battelle Memorial Institute

The Gulf of Mexico Program provided support to Hancock County to develop a set of options, costs, and recommendations for wastewater transport and treatment for individual collection districts and the Southern Regional Wastewater Management District. Battelle provided technical support for engineering alternatives needed for an evaluation of the current and future wastewater needs of the County. $80,000

TMDL Development Support B Bay St. Louis (Year 2)

Mississippi Department of Environmental Quality

The waters of the Bay of St. Louis often exceed the concentrations of fecal coliforms described in the standards for waters meeting these classifications. St. Louis Bay is ranked as the second most impaired waterbody on the State of Mississippi's '303(d) list for 1996. The Mississippi Department of Environmental Quality will work to determine the Total Maximum Daily Load (TMDL) of fecal coliform bacteria, which can be assimilated by the waterbody without exceeding the established standards. $63,000

Mississippi Sound Seagrass Mapping

Mississippi Department of Marine Resources

Maps are being produced that will allow consumers to study the status and trends of seagrass, causes of change, and gaps in existing data coverage along the Mississippi Sound. This project will define the present distribution of seagrass communities in the Mississippi Sound; provide measurements of status and trends of seagrass; evaluate the progress; collect, culture, and plant shoal grass in areas that have historically supported seagrass; and evaluate the adequacy of current water quality transparency and turbidity criteria to protect seagrass resources. $70,000

Hydrologic Initiatives in Coastal Mississippi and Alabama

The Nature Conservancy

The Nature Conservancy will identify the contributions of nearby shallow ground and surface waters originating within the watershed in the Grand Bay critical habitats. After identifying the impacts of water quality and altered hydrology, a comprehensive conservation strategy can be developed for the area. The major components of this project are to: 1) broaden the knowledge base/ understanding of coastal hydrology in uplands and wetlands near Grand Bay; 2) initiate planning for a wetland restoration construction project along the CSX railroad at the Mississippi/Alabama state line; and 3) design and initiate hydrologic monitoring in conjunction with the restoration project. $40,500

Point Source Locations for TMDLs

Mississippi Department of Environmental Quality

The Mississippi Department of Environmental Quality implemented a new integrated environmental information management system, enSite, in October 2000. This project will enhance the database enSite, obtain missing location data on permitted wastewater outfalls, and enter this information into the database. This information will enable the Department to develop Total Maximum Daily Loads (TMDLs) in a more efficient manner. $75,000

Yazoo River Basin Nutrient Project: Nutrient Assessments in Lakes and Reservoirs

Mississippi Department of Environmental Quality

The Mississippi Department of Environmental Quality must provide water quality data to support the development of nutrient criteria. Additional physical, chemical, and biological data are needed to recommend defensible nutrient criteria in the lakes and reservoirs in the Upper Yazoo River Basin. This project will provide for the water quality monitoring for both causative and response variables through the collection of data to complete this effort. $20,000

Brooklyn/Black Creek Wastewater Treatment Feasibility Study

Forrest County Supervisors

This project will provide an engineering feasibility study for the collection and treatment system in Brooklyn, Mississippi. $15,000

ALABAMA

PRIORITY: MOBILE BAY

Mobile Bay, an estuary of national significance in the National Estuary Program, is an arm of the Gulf of Mexico. Located in southwest Alabama, Mobile Bay ranges from eight to 18 miles wide, and extends 35 miles from the Gulf to the mouth of the Mobile River. A ship channel connects Mobile Bay with the Gulf, and the Intracoastal Waterway passes though the southern part of the bay. Mobile, Alabama, is on the northwest shore.

Mobile Bay's water quality is highly influenced by its natural geographic location, weather patterns of the watershed, and human uses. The Mobile Bay watershed or drainage system includes over two-thirds of Alabama and portions of Georgia, Tennessee, and Mississippi, making it the Nation's sixth largest in area and fourth largest in discharge volume. As a result, urban and agricultural development in the Bay's surrounding areas and in areas far outside the coastal region impact Mobile Bay's water quality characteristics.

Due to the large discharge volume of freshwater inputs entering Mobile Bay, it has been estimated that approximately 4.7 million metric tons of sediment are deposited into the Bay annually. This material has a high percentage of silt and clay, which can create a variety of environmental problems. Mobile Bay also receives more that 42,000 tons of nitrogen each year, which is a nutrient of concern in most coastal waters. Nutrient over-enrichment can lead to problems such as low oxygen levels. To address water quality issues, the Gulf of Mexico is sponsoring project to support the development of Total Maximum Daily Loads (TMDLs) though the compilation of water quality data and the development of watershed models.

The region is home to many rare and endangered species of wildlife, including five species of sea turtles, the West Indian manatee, sperm whales, whooping cranes, bottlenose dolphins, and the American bald eagle. Historically, the Mobile Bay basin has had a high number of species found nowhere else in the world, including 40 fishes, 33 mussels, and 110 aquatic snails, as well as a number of turtles, aquatic insects, and crustaceans. However, the watershed is currently experiencing species extinctions at a rate unmatched elsewhere in the continental United States—50 percent of U.S. extinctions have occurred during the last century within this area.

The Gulf of Mexico Program is currently supporting a project to develop a bacteriological water quality monitoring and notification program and a web site to provide the public with beach monitoring updates. In addition, the Gulf Program is also sponsoring a pilot study project to establish a volunteer-based nuisance and invasive jellyfish bloom reporting system that utilizes a network of individual volunteers in coastal Alabama and Mississippi.

Brief Synopsis of Mobile Bay Projects
Funded by the Gulf of Mexico Program in 2001

Mobile Bay Water Quality Modeling Support (Mobile Bay TMDLs)
Tetra Tech
The Environmental Protection Agency and the State of Alabama are responsible for the development of total maximum daily loads (TMDLs) for water bodies on the '303(d) list. The scope of this project will involve data evaluation, modeling, and other work necessary to develop the Mobile Bay and Mobile Bay Watershed TMDLs. $90,000

Wetlands Resource Management Baseline
University of Southern Alabama
This multi-year project will determine the extent of emergent wetland conversion, emergent alteration of degradation, and the condition of other upland habitats. There are two components: 1) the collection of color infrared aerial photography and 2) the photo interpretation, classification and mapping of the habitats. $80,000

Current Land Use/Land Cover Analysis for Coastal Alabama
Geological Survey of Alabama
A current land use/land cover classification for Mobile and Baldwin Counties, Alabama, will be developed. The datasets created by this project can be used as decision and planning support tools and as inputs for creating predictive models. $80,000

Coastal Alabama Recreational Water Quality Monitoring Program (Year 2)
Alabama Department of Environmental Management
This project will continue the monitoring of water quality in high-use public access areas on the Alabama Coast to provide information needed to assess the degree to which the water quality is suitable for swimming and overall human exposure. $31,500

Alabama Harmful Algal Bloom Information Exchange
Dauphin Island Sea Laboratory
The Dauphin Island Sea Lab Harmful Algal Bloom web page will be refined to provide a stand-alone World Wide Web Internet site. The Internet site will contain Harmful Algal Bloom data from all Alabama agencies and research data will be integrated into a comprehensive report on Harmful Algal Bloom distributions in state water. The undertaking will help to create the Alabama Harmful Algal Bloom Information Exchange Network. $13,500

Model 'Dock-Watch' Program to Track Nuisance and Invasive Jellyfish Blooms

A pilot study for a volunteer-based jellyfish bloom reporting system is being established that utilizes a network of individual volunteers in coastal Alabama and Mississippi. A fully functional automated web site for identification and reporting of jellyfish by volunteers has been developed. In addition, database management and querying protocols for use in the analysis of trends and patterns will be developed.

FLORIDA

BRIEF SYNOPSIS OF FLORIDA STATEWIDE PROJECTS

Funded by the Gulf of Mexico Program in 2001

Risks Associated with Consumption of Shellfish

Florida Department of Agriculture and Consumer Services

The Florida Department of Agriculture and Consumer Services will conduct an education workshop for the Florida medical community on the risks associated with consumption of shellfish. The main objective of this project is to inform the medical community in Florida about the risks posed by the marine bacteria, *Vibrio vulnificus*, to people whose immune systems are compromised by liver disease, chemotherapy and other factors that may increase adverse health risks. $18,900

PRIORITY: PENSACOLA BAY

The Pensacola Bay estuarine system is 144 square miles, and is the fourth largest estuarine system in Florida. The system comprises five interconnected sub-systems, including Pensacola Bay, Escambia Bay, Blackwater Bay, East Bay, four rivers—the Escambia, Blackwater, Yellow, and East Rivers, as well as numerous bayous. These waterways have long been used for transportation, seafood harvesting, recreational purposes and, unfortunately, for various types of waste disposal. The total drainage area covers nearly 7,000 square miles, about 34 percent of which is in Florida. The entire system discharges into the Gulf of Mexico, primarily through a narrow pass at the mouth of Pensacola Bay.

In the Pensacola Bay System, there has been a loss of over 20 percent of the submerged seagrasses in Big Lagoon and Santa Rosa Sound from 1980 – 1992. Various historical accounts document much greater seagrass and emergent wetland losses in other more developed areas of Pensacola Bay. In recent years, the public has expressed a keen interest in restoring these threatened habitats. As a result, in 1994 the Florida Department of Environmental Protection (FDEP) Northwest District created an Ecosystem Restoration Section (ERS) in Pensacola to develop seagrass and emergent wetland restoration techniques that could be utilized in northwest Florida. Over the past five years, the ERS has been fortunate to receive several grants that have funded the construction of the Tissue Culture Laboratory and the Coastal and Wetland Plant Nursery with two large greenhouses. The ERS has developed propagation techniques for over 40 species of seagrass and emergent wetland vegetation.

In Pensacola Bay, the Gulf of Mexico Program is funding a project to provide seagrass propagation materials for one year. The installation of seagrasses will convert subtidal areas, between the breakwater and the shoreline, that are currently an unvegetated sandy bottom habitat with a relatively low level of species diversity, to more highly diverse seagrass communities. The seagrass beds will provide critical habitat for juvenile fish, shrimp, crabs, and

other important species while helping to improve the water quality and reduce shoreline erosion. Additionally, the FDEP ERS will utilize the restoration sites in their efforts to develop more effective methods of restoring seagrass communities.

Brief Synopsis of Pensacola Bay Projects
Funded by the Gulf of Mexico Program in 2001

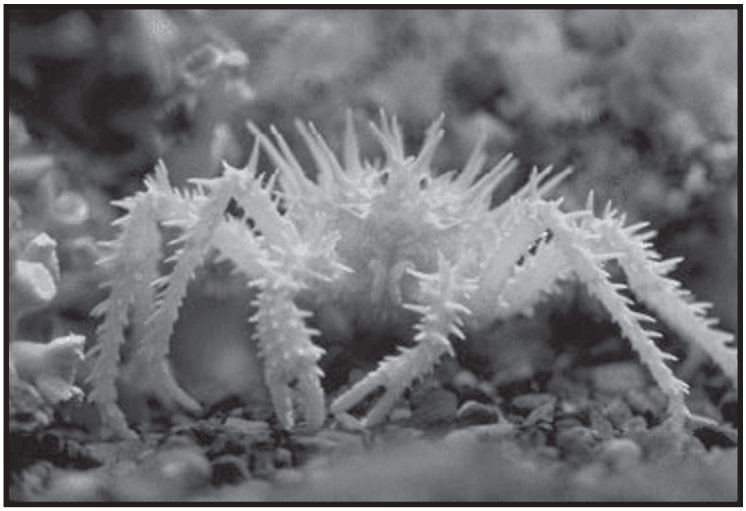
Storm Water Biofilter Demonstration Project B Pensacola Bay
Florida Department of Environmental Protection
The Pensacola Bay system has lost over 20 percent of submerged seagrasses from 1980 to 1992. Florida Department of Environmental Protection will construct between ten and twenty acres of salt marsh along approximately one mile of shoreline. Along the westward edge of the marshes, a series of oyster reefs will be constructed to protect the marsh area from wave energy. $67,500

Seagrass and Coastal Emergent Wetlands Restoration-Pensacola Bay System
Florida Department of Environmental Protection
Seagrasses will be propagated on biodegradable coconut fiber mats to be installed along the shoreline of the Pensacola Bay System to provide habitat and improve water quality. Combined expected annual production of seagrasses and emergent wetland vegetation is 80,000 plants. It is estimated that two acres of aquatic emergent wetlands will be created from this project. $63,000

PRIORITY: LOWER SUWANEE RIVER BASIN

Flowing southward from the Okefenokee Swamp for 394 kilometers before reaching the Gulf, the Suwannee River is first a highly colored, acidic creek, and then successively a torrential stream with limestone shoals, a meandering river, extensive coastal swamp and finally an estuary. The Suwannee Estuary is a relatively open area and does not conform to the classic definition of an estuary (i.e., it is not semi-enclosed, nor is it separated from a major water body by barrier islands). However, the near shore flora and fauna found here are characteristically estuarine. High volumes of freshwater discharges result in the formation of an estuarine salinity gradient.

Along the coast, salt marshes extend north to Apalachicola Bay and South to the Tarpon Springs area. These extensive marsh areas are dominated by *Juncus roemerianus,* which is the most prevalent species along Florida's west coast.



The plants and animals that live in and around a river or stream are used to, and dependent upon, the normal, seasonal, and year-to-year changes in the flow and level of the stream. Without a certain amount of water flow or a particular level of water, at the right time and for a sufficient duration, reproduction and growth of fish and other water-dependent animals or plants could be inhibited. The Suwannee in particular has a high degree of variability in its flow pattern. Alteration of river inflow from fresh water withdrawal can significantly affect the salinity of an estuary and change the biotic composition and abundance.

Minimum flows and levels are the flow or level at which further withdrawals of water would be significantly harmful to the water resources or ecology of the area. Currently, the priority area for the Suwannee River Water Management District to set these minimum flows and levels is the lower Suwannee River, from its confluence with the Santa Fe River to the Gulf of Mexico, including that portion of the Gulf where the river's freshwater mixes with the salt water of the Gulf.

The Gulf of Mexico Program is currently supporting a project conduct aerial photography assessments of seagrass habitat and water quality in the northern Florida Big Bend Coastal Area from Waccasassa Bay to northern Apalachee Bay. In addition, the Gulf Program is also funding a project to conduct environmental tracing and monitoring to determine if older onsite sewage treatment disposal systems are a significant source of the coliform contamination in adjacent coastal waters and canals.

Brief Synopsis of Lower Suwannee River Area Projects
Funded by the Gulf of Mexico Program in 2001

Suwannee River Coastal Community Coliform and Nutrient Control/Monitoring of Eutrophication
Florida Department of Health
Environmental tracing and monitoring will be conducted to determine if older onsite sewage treatment and disposal systems are significant sources of coliform contamination in adjacent coastal waters and canals. Monitoring will be conducted also for nitrogen and phosphorous which have been shown to increase the possibility of hypoxia in the Gulf of Mexico. $80,000

Assessment of Seagrass Habitats and Water Quality in Big Bend Area
Suwannee River Water Management District
Submerged aquatic vegetation or seagrass habitat in the Big Bend area is some of the most extensive in Florida. Protection of the seagrass will largely depend on adequate water quality allowing sufficient light energy to penetrate to the seagrass canopy. This study will include field sampling, laboratory sampling and data summary to assess the water quality in the region to improve the habitat in which new seagrass may emerge. $25,000

PRIORITY: TAMPA BAY

Tampa Bay, part of the National Estuary Program, is the largest open-water estuary in Florida, encompassing nearly 400 square miles and bordering three counties—Hillsborough, Manatee and Pinellas. The bay's sprawling watershed covers a land area nearly five times as large, at 2,200 square miles. More than 100 tributaries flow into Tampa Bay, including dozens of meandering, brackish-water creeks and four major rivers—the Hillsborough, Alafia, Manatee, and Little Manatee.

More than 200 species of fish are found in Tampa Bay, including the popular snook, redfish and spotted sea trout. Mangrove-blanketed islands in the Bay support the most diverse colonial waterbird nesting colonies in North America, annually hosting 40,000 pairs of 25 different species of birds, from the familiar white ibis and great blue heron to the regal reddish egret—the rarest heron in the nation.

On average, Tampa Bay is only 12 feet deep. Because it is so shallow, manmade shipping channels have been dredged to allow large ships safe passage to the Port of Tampa and other bay harbors. The Port of Tampa is Florida's largest port and consistently ranks among the top ten ports nationwide in trade activity. More than four billion gallons of oil, fertilizer components and other hazardous materials pass through Tampa Bay each year.

Seagrasses are nurseries of the bay, sheltering and supporting an amazing variety of juvenile fish and other marine creatures. The Tampa Bay Estuary Program has set a goal of restoring 12,000 acres of seagrasses baywide. From 1984-1996, progress toward that goal remained on track, with more than 5,000 new acres reported. However, in the last three years, more than 2,000 acres have been lost. Since water quality apparently remains good enough for seagrass expansion to continue, scientists want to explore other potential causes of the recent declines.

Brief Synopsis of Tampa Bay Projects
Funded by the Gulf of Mexico Program in 2001

Restore Circulation and Provide Ecological Enhancement in Fort DeSoto Park Aquatic Habitat Management Area
Pinellas County Department of Environmental Management
The objective of this cooperative effort is to restore circulation to the inner portion of bays that were severed during the dredging and filling activities that occurred in the late 1950s. The focus of this project is on habitat recovery through the enhancement of seagrasses as well as the enhancement of fauna dependent upon seagrasses in the area. It is estimated that over two hundred acres of vegetative seagrass will be created or enhanced and water quality parameters will be improved by this undertaking. $100,000

The Gulf of Mexico Program is currently supporting a project to restore circulation and provide ecological enhancement in the Fort DeSoto Park Aquatic Habitat Management Area. Restored circulation patterns will lead to improvement in water quality parameters and healthier seagrass and faunal communities. The improved health and viability of seagrasses will result in continued seasonal uptake of nutrients and sediment trapping instead of adding pollutant loads to the water body due to decaying seagrasses.

PRIORITY: SARASOTA BAY

Designated as an estuary of national significance by the National Estuary Program, Sarasota Bay is a coastal system that extends from Venice Inlet through Anna Maria Sound and encompasses the barrier islands, tributaries, and uplands within the Bay watershed. The Bay is comprised of two major embayments—Sarasota Bay and Little Sarasota Bay—and many smaller embayments. The bay is encompassed by parts of Manatee County to the north and Sarasota County to the south.

Nearly 50 years of urban growth and development have taken a toll on Sarasota Bay. Excess nitrogen—which enters the Bay through wastewater, stormwater, rainfall, and the atmosphere—poses the biggest threat to the health of the estuary. Humans are the primary cause for

nitrogen input: human waste, fertilizers, automobiles, lawn mowers, power plants, boats, personal watercraft, and other human activities excess nitrogen to Sarasota Bay. Computer modeling has indicated that nitrogen loading levels had increased by 480 percent since the 1800s.

Studies conducted by the Sarasota Bay National Estuary Program studies completed in 1993 indicated that seagrass had declined by 30 percent since 1950 due to increases in nitrogen pollution and historic dredge-and-fill activities. Working with the community, the Sarasota Bay National Estuary Program has helped to reduce the amount of nitrogen entering the Bay by 47 percent, resulting in an 18 percent increase in seagrass coverage. The program has embarked on a series of projects to enhance habitat related to seagrasses, wetlands, and artificial reefs. As compared with 1998, the Bay now supports and additional 110 million fish, 71 million crabs, and 330 million shrimp. The program also has enhanced more than 130 acres of wetlands since 1990—about eight percent of those lost since 1950.

The Gulf of Mexico Program did not fund any projects in the Sarasota Bay area of Florida during 2001.

PRIORITY: CHARLOTTE HARBOR BAY

Part of the National Estuary Program, the Charlotte Harbor Estuary is located on Florida's west coast. Its watershed encompasses approximately 4,468 square miles in southwest Florida and covers all or portions of eight counties. The study area includes the Myakka, Peace, and tidal Caloosahatchee River watersheds as well as Lemon Bay, Coastal Venice, Charlotte Harbor proper, Pine Island Sound, Matlacha Pass, San Carlos Bay, and Estero Bay.

The Charlotte Harbor Estuary is home to more than 2,300 animal species, including manatees, sea turtles, and dolphins. Over 2,100 species of plants—from grasses to mangroves to oaks—are also found in the region. Rapid growth, however, is changing the character and ecology of the watershed. To preserve the estuarine environment, the Charlotte Harbor National Estuary Program is focusing on the following key management issues: nutrients, pathogens, habitat loss/degradation, introduced species, and water flow alterations.

Salty water from the Gulf of Mexico enters Charlotte Harbor through Boca Grande and the other Gulf passes. With the tides, the saline water moves up the Harbor and into the rivers, mixing with their fresh water and creating a zone of brackish water. The distance that the brackish water travels upstream in the rivers is dependent on the volume of fresh water traveling downstream, the tides, and the wind. When river flows decrease, as is common during the spring dry season, the salty water moves further upstream. If river flows become permanently reduced because of human effects, the salinity zone will move further upstream. As plants are very sensitive to salinity, the salty water zone tends to have salt tolerant plant species on the river bottom and along the shore. By monitoring the location of salinity sensitive plant species and measuring the water salinity, it can be determined if the salinity zone is moving upstream and changing the natural plan of communities that live there.

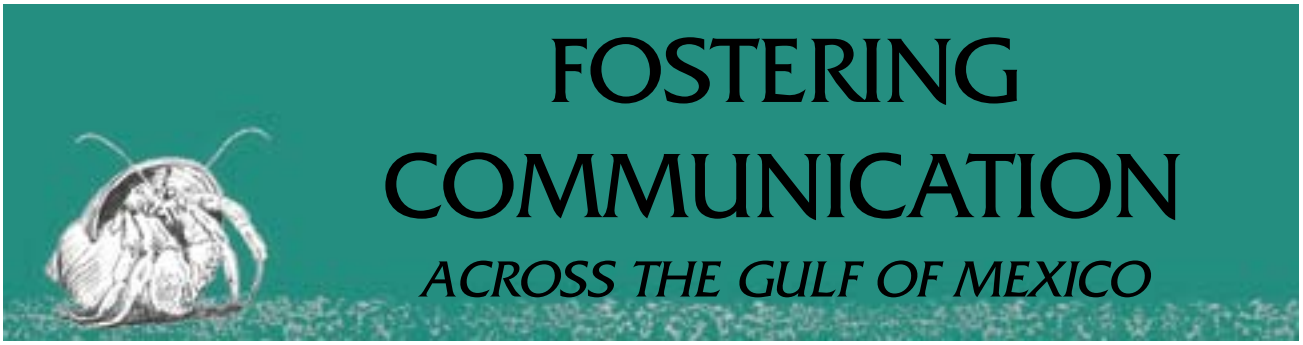
The Gulf of Mexico Program did not fund any projects in the Charlotte Harbor Bay area of Florida during 2001.

RESEARCH STRATEGY

A comprehensive research strategy for supporting the major program elements in the Gulf of Mexico Program was developed as part of the Monitoring and Modeling Subcommittee. The document was peer reviewed and the finalized document was sent to the USEPA Administrator. The document includes funding estimates and identifies what parts of the research that the EPA Office of Research and Development should be directly involved with. The USEPA Office of Research and Development (ORD) and the Gulf of Mexico Program office have been developing a research strategy specifically directed towards the hypoxia issue. The EPA ORD Health Effects laboratory is taking the lead responsibility along with anticipated support from the ORD Exposure laboratory. The Gulf of Mexico Program continues to work with the U.S. Navy on developing a modeling capability for the inner shelf of the Gulf of Mexico. This model is anticipated to move from its initial development and testing within the Mississippi Sound area to the western part of Louisiana to accommodate the hypoxia and land loss issues. A technical workshop is being developed to format a steering committee for oversight and to develop objectives and strategy for the program. This research is anticipated to be a joint effort among several federal, state and local agencies. The Gulf of Mexico Program is funding several demonstration projects that will provide key starts for landscape modeling, water quality modeling, hazardous algae bloom modeling, and homeland defense.

CITIZENS ADVISORY COMMITTEE

During 2001, members of the Gulf of Mexico Program Citizens Advisory Committee (CAC) participated in Gulf of Mexico Program and related environmental activities. Tracking during the year provided a quantitative analysis of activities. CAC members conducted 32 Gulf Program project reviews; represented the CAC at all six Management Committee and Policy Review Board (PRB) meetings; attended Focus Team and Operational Committee meetings and participated in conference calls; communicated with their constituencies by making six presentations on the Gulf of Mexico Program; attended 14 additional environmental meetings; and wrote 21 letters to various leaders in Gulf Program priority areas. CAC members are appointed by state governors to represent areas of agriculture, environment, tourism, business and industry, and fisheries; and as such, they reported back to their governors on key issues. In November, annual performance goals and sub-objectives were agreed upon and established for 2002. CAC members also sent forward a resolution in support of the PRB Recommendations, which was forwarded to the Administrator of the U.S. Environmental Protection Agency. The CAC also championed several Gulf Program projects, including the Dockwatch Project, a volunteer jellyfish data collection project utilizing citizen participation in support of the nonindigenous species focus area, the development of a Gulf Coast Bird Trail homepage, and the development of an environmental speech program for senior high school students. Citizen participation in the Gulf Program continues to be vital to the consensus management process in the Gulf of Mexico Program.



The Gulf of Mexico Program sponsored and supported the following communication efforts in 2001:

- The 11th International Conference on Invasive Species (Zebra Mussels) addressed the ongoing threat of invasive species to the Gulf of Mexico. $5,000

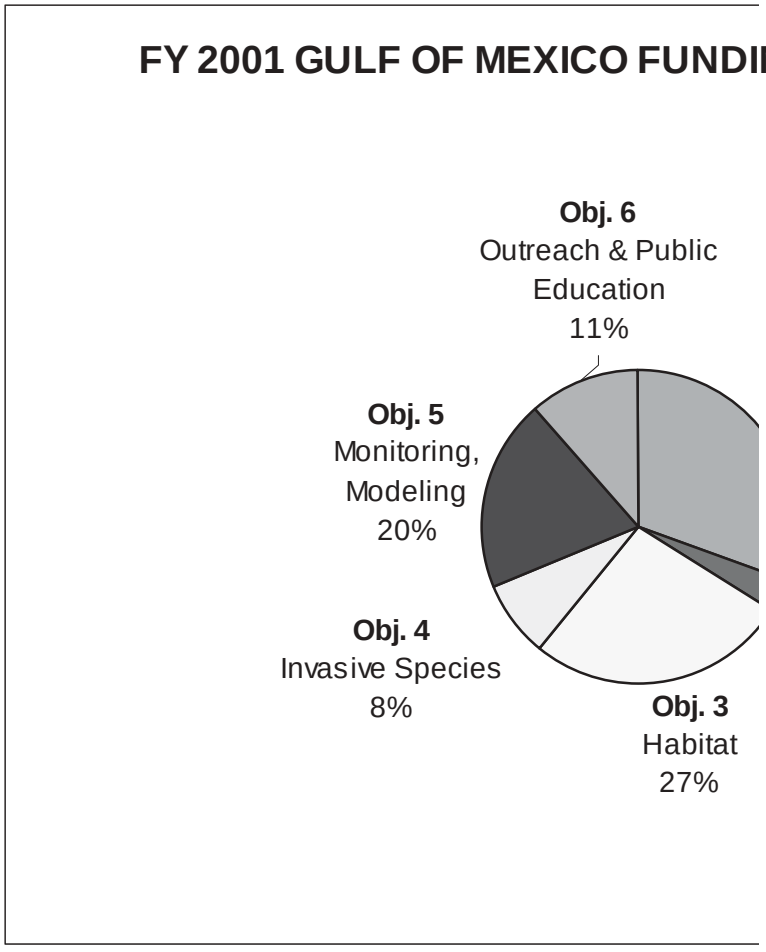
- Celebrate the Gulf, a local festival on the Mississippi Gulf Coast, promotes the Gulf of Mexico Program's philosophy to protect, restore and maintain the health and productivity of the Gulf of Mexico ecosystem through education. $2,000

- The Coastal Society 2002 Conference was held May 19-23, 2002, in Galveston, Texas. The Conference, "Converging Currents: Science, Culture and Policy at the Coast," focused on exploring interrelationships among the physical, ecological, cultural, and political currents that converge at our Nation's coast. One of the interrelationships to be explored is "Ecosystem Perspectives at the Regional Scale - The Gulf of Mexico Case Study." $15,000

- The 2001 Gulf and South Atlantic Shellfish Conference is an important forum for industry representatives and state and federal regulators. Discussions include important health and safety issues that affect both consumers and industry. $500

- The 2001 Video News Release Series: "It's Time! One Gulf ... One Community" documents Gulf of Mexico Program projects throughout the Gulf. $37,200

FY2001 FUNDING



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APPENDIX 1: FY2001 ANNUAL PERFORMANCE GOAL ACCOMPLISHMENTS

APG 1(A)(1)	By September 2001, the GMP will assist the Gulf States in implementing actions for 14 impaired coastal segments.	GMPO supported projects in 37 Priority Area Segments/ Waterbodies.
APG 1(B)(1)	By September 2001, the GMP will assist States in improving treatment for domestic sewage and/or contaminated stormwater in three of the 12 priority coastal areas.	GMPO provided funding and/or technical support for on-site sewage assistance in three priority areas: Barataria-Terrebonne, Mississippi Coastal Basin, and Pensacola Bay.
APG 1(C)(1)	Each year between 2001 and 2005, the GMP will work with State partners to identify priority coastal waters impaired by excess nutrients and provide assistance to monitor, model, and reduce nutrient loads in five impaired segments.	GMPO supported projects to address excessive nutrients in 35 impaired segments.
APG 2(A)(1)	By September 2001, continue to educate high-risk consumers through health care professionals to improve awareness of the risks of eating raw shellfish. Awareness will increase 30 percent above baseline levels.	Partnership with the Liver Foundation resulted in distribution of 113,000 brochures and 12,000 fact sheets in more than 45,000 households. These brochures will also be produced in Spanish. GMPO supported a project to develop and present a course to health care professionals in Florida. This will serve as a pilot that can be extended to all affected states.
APG 2(B)(1)	By September 2001, evaluate the appropriateness of existing surveillance systems to assess behavioral changes in high risk consumers.	A raw oyster consumer baseline survey is being conducted and results are expected in December 2001. The baseline will be used to evaluate the effectiveness of education efforts. The survey will be conducted every two years.
APG 3(A) (1)	By April 2001, the GMP will support an institution to market and manage the seagrass re-vegetation challenge grant program and assist in the development of grant guidelines and the supporting outreach program.	Request for financial support to address this sub-objective was included in the PRB Recommendations to the Administrator of EPA. This APG is being re-evaluated and was not completed this FY.
APG 3(B)(1)	By December 2001, the GMP will complete seagrass coverage maps, produce a seagrass status and trends report.	The Seagrass Status and Trends Report is well underway and is expected to be completed by December 31, 2001 with a final publication date of March 2002.

APG 3(C)(1)	Between 2000 and 2004, the GMP will support projects with the goal of restoring or protecting over 1,000 acres of seagrasses and coastal wetlands per year. To help accomplish this goal the GMP will utilize GMP partnership tools, such as: a) NFWF Gulf Conservation Challenge; b) Five-Star Habitat Restoration Program; and c) Coastal America.	Projects were initiated to restore/enhance/ protect 762 acres in Sarasota Bay, Galveston Bay, Destin, Bayou Lafourche, Project Greenshores, Charlotte Harbor, Long Leaf Pine in Mississippi, Fort DeSoto, Corpus Christi Bay, and Pensacola Bay.
APG 3(C)(2)	By September 2001, the GMP will take inventory and quantify its participation in federal, state, and private efforts to increase seagrass and coastal wetland acreage across the five Gulf States.	A preliminary inventory analysis that provides an initial review of seagrass or wetland restoration efforts has been prepared and will be presented at the Habitat Focus Team meeting in October 2001.
APG 3(C)(3)	By September 2001, the GMP will continue to promote the Gulf Ecological Management Sites (GEMS) by supporting five GEMS projects (one per Gulf State), increase Gulf-wide GEMS coordination and outreach efforts, and support the development of a GEMS information management system.	GMPO provided support for five GEMS projects: Suwannee River, Bayou Lafourche, Coastal Mississippi and Alabama, Corpus Christi, and Coastal Mississippi Basin.The Gulf of Mexico Foundation, which administers the GEMS Program, has been awarded a NOAA Community Restoration Program grant to create a regional partnership in the Gulf of Mexico.
APG 4(A)(1)	By February 2001, the Gulf Regional Panel will forward policy and programmatic recommendations regarding the prevention, management and control of aquatic nonindigenous species in the Gulf of Mexico to the Policy Review Board and the National Aquatic Nuisance Species Task Force.	The Annual Report, approved by the Management Committee and Policy Review Board, was submitted to the ANS Task Force on April 4, 2001. No comments were received.
APG 4(A)(2)	By April 2001, initiate three projects in priority coastal areas to prevent or reduce the impact of invasive species.	GMPO provided support to one project in a priority area: Corpus Christi Bay. Two Gulf-wide invasive species projects were funded, and invasive species was included in two habitat restoration projects.
APG 4(A)(3)	By September 2001, assist one Gulf State develop a comprehensive invasive species management plan.	LA and FL are developing a process to identify state agencies responsible for invasive species. A project to assist LA to develop a coastal aquatic invasive species plan will be funded in FY 2002.
APG 4(A)(4)	By January 2002, submit the Gulf of Mexico 2001 annual report to the National Aquatic Nuisance Species Task Force.	A concept design, table of contents, and timeline for the Annual Report will be submitted for approval to the MC at the October 2001 meeting. The final report should be completed to present to the Task Force at their meeting in February 2002.
APG 4(A)(5)	By October 2001, establish pilot project with Mississippi Master Naturalist program to provide education/outreach on invasive species.	MSU is submitting a proposal to GMPO for support for the Master Naturalist Program. The Program could serve as a model for other states.

APG 4(B)(1)	By September 2001, evaluate and provide recommendations to the GMP Management Committee on partnering opportunities with international organizations working to eliminate pathways of transboundary exchange of invasive alien species.	GMPO is evaluating options. There are no recommendations at this time.
APG 5(A)(1)	By December 2001, complete assessment of FY2000 JGSMP effort, produce report, and continue implementation.	The initial sampling in 2000 was delayed due to grant issues with the States. Sampling was completed in November 2000 and sample analyses are underway. Expect final report for 2000 sampling in 2002.
APG 5(B)(1)	By September 2001, provide operational Mississippi Bight model that describes circulation, sediment transport, and wave height for the coastal waters from Lake Borgne to Mobile Bay.	The ECOM model is operational. The validation and sensitivity analyses are complete except for sediment. The sediment transport component will not be verified at this time.
APG 5(C)(1)	By July 2001, complete an initial assessment of remote sensing requirements of the GMP's State partners to address Gulf coastal issues.	Two remote sensing workshops were completed. A needs assessment was completed and reviewed.
APG 5(C)(2)	By September 2001, assist in the development of a final proposal for the design, funding and implementation of an observing system that integrates data on harmful algal events with key measures of environmental quality.	A Prospectus for implementing a Harmful Algal Blooms Observing System – Pilot Project was developed and will be presented at the October 2001 Management Committee meeting. Support will be provided to Dauphin Island Sea Lab for developing the case study component of the Pilot Project.
APG 5(D)(1)	By March 2001, develop coordinated FY2003 federal budget proposal for Gulf of Mexico research.	A draft research strategy and inventory was presented at the Comprehensive Meeting in June 2001. Comments received from the Focus Teams and Monitoring, Modeling and Research Committee were referred to the expert panel leads for review. The completed Research Strategy will be presented to the MC for endorsement in October 2001.
APG 5(E)(1)	By September 2001, complete initial assessment of the utilization of the Virtual Data Warehouse.	Initial assessment of the Virtual Data Warehouse was completed in June 2001. Evaluation of the utility and continued operation and maintenance of VDW will be made by October 2001.
APG 5(E)(2)	By July 2001, fully implement the Gulf Mortality Network (GMNET) data management system.	GMPO provided support to FMRI to develop the next version of GMNET. GMNET development is to be completed by July of 2002.
APG 5(E)(3)	By September 2001, complete an evaluation of the GEMS data requirements and determine if a regional system is required.	At a GEMS meeting held in February it was determined that a regional database system is not needed.
APG 6(A)(1)	By October 2000, update the GMP Strategic Communication Plan.	The APGs will be used as the Strategic Plan for the Communication Committee each year.

APG 6(A)(2)	By June 2001, conduct 2nd Annual Gulf Guardian Award Ceremony.	An award ceremony was held for the Texas award winners in April 2001 at the TNRCC Environmental Trade Fair in Austin, TX. The other Gulf State awards were at the Southern States Environmental Conference in September 2001 in Biloxi, MS.
APG 6(A)(3)	By September 2001, complete six video news releases on GMP projects and produce the 2001 30-minute presentation "One Gulf of Mexico...One United Community."	All video news releases and the 30-minute presentation were completed by September 2001.
APG 6(A)(4)	By September 2001, support two communication/public outreach projects identified by constituents in the priority coastal areas.	Two projects with outreach components were supported by GMPO: Bayou Lafourche Initiative and Galveston Bay Web Enabled Bay and Gulf Interactive Eco-tour.
APG 6(A)(5)	By December 2001, complete GMP 2001 Annual Shareholder Report.	The GMP 2001 Annual Shareholder Report is underway and is expected to be distributed by March 2002.
APG 6(A)6	By September 2001, show significant progress in promoting the "It's Time" image adopted in 2000 to promote Gulf unity.	Efforts to promote the "It's Time" image have not been successful. The Communications Committee will consider options at the next meeting in January.
APG 6(A)7	By September 2001, identify means to measure subobjective 6(A) – "improved regional awareness."	EPA Regions 4 and 6 provided funding to develop a survey to be used for measuring regional awareness. This will be completed by December 2002.
APG 7(A)(1)	By December 2001, final Action Plan submitted to Congress.	The final Hypoxia Management Plan was submitted to Congress on January 18, 2001.
APG 7(A)2	By June 2001, evaluate GMP areas of responsibility in the Final Action Plan and provide recommendations to the GMP Management Committee for FY2002 workplan commitments.	The GMPO is coordinating efforts among EPA-ORD, Navy, and U.S. Army Corps of Engineers to develop a eutrophication model for the northern Gulf hypoxic zone. Further direction from the Administration is expected on proceeding with the Action Plan.
APG 7(A)(3)	By September 2001, provide program guidelines and enlist the support of 31 State Land Grant University Water Quality Coordinators for the Gulf Hypoxia Action Plan.	An email list for the 31 states will be completed by November 2001 to be used to enlist support.
APG 7(A)(4)	By June 2001, plan, coordinate and fund a pilot education-outreach program for Gulf Hypoxia with one mid-western state through the Land Grant University for agricultural interests.	A pilot education-outreach program is being funded by USDA and EPA.

APPENDIX 2: GULF GUARDIAN AWARDS

FIRST PLACE

Business
Shell Marine Habitat Program
Houston, Texas

and

National Fish and Wildlife Foundation
Washington, D.C.

Youth/Education
Tampa BayWatch, High School Wetland Nursery Program
Tampa, Florida

Non-Profit Organization
REEF – Reef Environmental Education Foundation
Flower Garden Banks National Marine, Sanctuary Fish Survey Project
Galveston, Texas and Key Largo, Florida

Government
Florida Department of Environmental Protection
Clean Marina Program
Tallahassee, Florida

Individual
Will Myers
Austin, Texas

Partnership
USDA - Natural Resources Conservation Service
Texas Prairie Wetlands Project
Cuero, Texas

SECOND PLACE

Business
Dow Chemical Company
Sea Center Texas
Freeport, Texas

Youth/Education
The Pier Aquarium, Inc.
Tampa Bay Walks the Talk
St. Petersburg, Florida

Non-Profit Organization
Rivers, Lakes, Bays 'N Bayous Trash Bash
Trash Bash 2000
Galveston, Texas

Government (Tie)
Louisiana Office of Conservation
Underwater Obstruction Removal Program
Baton Rouge, Louisiana

and

Mississippi Soil & Conservation Commission
Animal Waste Irrigation Demonstration Project
Jackson, Mississippi

Individual
Marilyn Barrett-O'Leary
Baton Rouge, Louisiana

Partnership
Baldwin County Soil & Water Conservation District
Weeks Bay Watershed Pollution Prevention Project
Mobile, Alabama

THIRD PLACE

Business
The Nature Conservancy – Mississippi Chapter
Old Fort Bayou Mitigation Bank
Ocean Springs, Mississippi

Youth/Education
Adopt-A-Wetland Program
Wetland Education In Action
Corpus Christi, Texas

Non-Profit Organization
Ruskin Community Development Foundation
Camp Bayou Outdoor Learning Center
Ruskin, Florida

Government
Tie for Government Category in 2nd Place
Meant No Third Place Award

Individual
Mark Shirley, Marsh Maneuvers
Abbeville, Louisiana

Partnership
Choctawhatchee, Pea, and Yellow Rivers
Watershed Management Authority
Unpaved Roads Erosion and Sediment Control Project
Troy, Alabama